

**REFUGE
CHARTERS APPENDIX**

**FOR THE
2016 ANNUAL WORK PLAN
PUBLIC DRAFT**

CENTRAL VALLEY PROJECT IMPROVEMENT ACT
TITLE XXXIV OF PUBLIC LAW 102-575

JULY 9, 2015

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Level 2 Refuge Water Conveyance (FY2016)

Conveyance of surface water and groundwater pumping for refuges

Classification: Improvement, Refuge Surface
 Location: , Central Valley Wide
 Funding Years: 2015 - 2018
 Benefits Start Year: 2016
 Priority: 2 - Refuge Water Supply Program - Priority Ranking Numbers & Definitions:

- 1) Labor & overhead (Administrative and Technical);
- 2) Conveyance of 100% Level 2 water, subject to CVP water supply availability;
- 3) Acquisition and conveyance of IL4 “backstop” water needed to help meet Level 2 demands when CVP Level 2 allocation is less than 100%;
- 4) Facilities construction – ongoing needs; and
- 5) IL4 water acquisition and conveyance over and above what is required under Priority 3.

Partners: FWS, CDFW, GWD

Related Programs: No Data.

Authority

Provision	Percentage	Comment
(d)(1) Refuge Conveyance L2	100.0%	

Metrics

Name	Value	Units	Comment
Conveyance: L2 Refuge Water Convey (annual)	12780	acre-feet	L2 Groundwater Pumped for WY2016
Conveyance: L2 Refuge Water Convey (annual)	337976	acre-feet	L2 Surface Water Conveyance for WY2016
Conveyance: L2 Refuge Water Convey (annual)	45715	acre-feet	L2 Water from Diverse Sources at no Cost to RWSP for WY2016

Deliverables

Date	Title
Mar. 2016	Level 2 Water Conveyance to CVPIA Refuges

Narrative

Conveyance of Level 2 refuge water supplies to CVPIA refuges. This includes CVP surface water and water from diverse sources such as groundwater, mitigation water, water rights water, riparian rights water, and accretion water.

The conveyance of surface water supplies requires conveyance contracts with a number of conveying entities. Due to the geographical location of the refuges, direct delivery of water to a refuge boundary from Reclamation conveyance facilities can only be achieved for one of the 19 refuges. The remaining refuges receiving surface water deliveries require up to 3 conveying entities (including Reclamation facilities) for water to reach their boundaries. For the purpose of this charter, the primary conveyer represents the contracted conveyer conveying the initial diversion of refuge water supplies. In most cases, this water is then delivered to another conveying entity (secondary conveyer) with facilities in closer proximity to specific refuges. In some instances, the secondary conveyer completes the conveyance, delivering water to the refuge boundary. In other instances, a third conveying entity (tertiary conveyer) is necessary to complete refuge water conveyance due to the distances between certain refuges and available conveyance facilities. The secondary conveyer moves refuge water into the tertiary conveyer's system for final delivery to refuge boundaries.

-- FY16 represents projected costs to convey full L-2 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2016 (March 1, 2016, thru February 28, 2017).

-- FY17 represents projected costs to convey full L-2 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2017 (March 1, 2017, thru February 28, 2018).

- FY18 represents projected costs to convey full L-2 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2018 (March 1, 2018, thru February 28, 2019).

Data Management

Contract and agreement records are maintained in Acquisitions Division, MP-3800 and Resources Division, MP-410.

Delivery data is maintained in MP-410 on the J Drive. Flow data for Gray Lodge Wildlife Area surface water is available on the internet at:

<http://www.usbr.gov/mp/glwa/index.cfm>

Risks

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Unfavorable hydrology	1	2
Conveyance contractor default	1	3

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>	<u>DFW</u>
2016	CVPRF	\$13,784,464	\$12,778,258	\$1,006,206	\$0
2016	SIK	\$81,000	\$0	\$0	\$81,000
2017	CVPRF	\$14,172,248	\$13,135,856	\$1,036,392	\$0
2017	SIK	\$81,000	\$0	\$0	\$81,000
2018	CVPRF	\$14,585,032	\$13,518,453	\$1,066,578	\$0
2018	SIK	\$81,000	\$0	\$0	\$81,000

Total Cost: \$42,784,744

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2016				
<i>Implementation - L2 Surface Water Conveyance</i>				
Agreement	\$51,000	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR (AF included in 337,976 under Benefit section)
Agreement	\$120,000	BOR	CVPRF	Convey surface water to Gray Lodge WA (AF included in 337,976 under Benefit section)
Agreement	\$220,000	BOR	CVPRF	Convey surface water to Los Banos WA and Grassland Resource Conservation District (AF included in 337,976 under Benefit section)
Agreement	\$1,916,000	BOR	CVPRF	Convey surface water to Sacramento, Colusa and Delevan NWRs (AF included in 337,976 under Benefit section)
Agreement	\$485,000	BOR	CVPRF	Convey surface water supplies to Los Banos WA; Salt Slough Unit of N. Grasslands WA; and Freitas and Kesterson Units of San Luis NWR (AF included in 337,976 under Benefit section)
Agreement	\$1,492,000	BOR	CVPRF	Convey surface water to China Island Unit of N. Grasslands WA; and to tertiary conveyor for Los Banos WA; Salt Slough Unit of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Grassland Resource Conservation District (AF included in 337,976 under Benefit section)
Agreement	\$6,840,000	BOR	CVPRF	Convey surface water to Volta & Mendota WAs; and to secondary & tertiary conveyors for

Type	Total	Agency	Fund	Description
				Los Banos WA; China Island and Salt Slough Units of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Kern NWR; & Grassland Resource Conservation District (AF included in 337,976 under Benefit section)
In-Kind Equipment or Materials	\$81,000	DFW	SIK	District fees to convey water to primary and secondary lands within the Gray Lodge Wildlife Area.
Agreement	\$685,596	FWS	CVPRF	Convey surface water to San Luis and West Bear Creek Units of the San Luis NWR (AF included in 337,976 under Benefit section)
Agreement	\$162,000	BOR	CVPRF	Convey surface water directly to Kern NWR (AF included in 337,976 under Benefit section)
<i>Implementation - L2 Groundwater Pumping and Lift Pumping</i>				
Agreement	\$320,610	FWS	CVPRF	1)Groundwater pumping at Merced (4,000 AF-- part of 12,780 in Benefit section);2)temp lift pumps rental for fall @ Sutter & lift pumpng @ Sutter Triangle (AF included in 45,715 in Benefit);3)lift pumping to elevate surface water at Colusa & Sutter ref boundaries (AF included in 337,976 under Benefit)
Agreement	\$1,065,000	BOR	CVPRF	Costs for pumping L2 groundwater & lift pumping required to elevate surface water supplies at refuge boundaries. (6,280 AF included in L2 Groundwater Pumped Benefit) Refuges: Pixley NWR; Gray Lodge, Volta, Los Banos, & Mendota WAs; China Island & Salt Slough Units; and E. Bear Cr. Unit.
Agreement	\$275,000	BOR	CVPRF	O&M costs for pumping L2 groundwater from Volta Wasteway L-2 Diversification/Incremental L-4 Development Project wells to make a like quantity of Project L2 surface water available for use by other CVP contractors. (2,500 AF included in L2 Groundwater Pumped Benefit). Refuges: GRCD
Agreement	\$120,000	BOR	CVPRF	Electrical power costs for pumping L2 groundwater from Volta Wasteway L2 Diversification/Incremental L4 Development Project wells to make a like quantity of Project L2 surface water available for use by other CVP contractors. (2,500 AF - included in L2 Groundwater Pumped Benefit). Refuges: GRCD

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<i>Implementation - L2 Water from Diverse Sources</i>				
Agreement	\$0	BOR	CVPRF	L-2 surface water provided from diverse sources with NO conveyance/power cost to Refuge Conveyance Program. Sutter 13,570 AF riparian rights; Gray Lodge 17,800 AF water rights; Los Banos 3,995 AF mitigation; Merced 9,500 AF mitigation via Merced ID (FERC license);Volta 850 (Volta Wasteway accretion)
<i>Monitoring - L2 Water Quality Monitoring</i>				
Labor	\$0	BOR	CVPRF	Collect and evaluate flow data to determine conveyance water losses to the East Bear Creek Unit of the San Luis NWR Complex. Costs included in 'RWSP Technical Support' charter for labor.
Agreement	\$7,258	BOR	CVPRF	Contract laboratory water sampling analysis costs for Gray Lodge Wildlife Area water quality monitoring program for both groundwater and surface water supplies.
Equipment or Materials	\$25,000	BOR	CVPRF	Contract to provide necessary flow meter measurements (similar to calibrations) to assure accuracy of data collected; maintenance and equipment parts replacement. Flow meters located on Bear Creek for purpose of determined water losses in deliveries to E. Bear Cr. Unit.
2017				
<i>Implementation - L2 Water from Diverse Sources</i>				
Agreement	\$0	BOR	CVPRF	L-2 surface water provided from diverse sources with NO conveyance/power cost to Refuge Conveyance Program. Sutter 13,570 AF riparian rights; Gray Lodge 17,800 AF water rights; Los Banos 3,995 AF mitigation; Merced 9,500 AF mitigation via Merced ID (FERC license);Volta 850 (Volta Wasteway accretion)
<i>Implementation - L2 Surface Water Conveyance</i>				
Agreement	\$123,600	BOR	CVPRF	Convey surface water to Gray Lodge WA (AF included in 337,976 under Benefit section)
Agreement	\$1,973,480	BOR	CVPRF	Convey surface water to Sacramento, Colusa and Delevan NWRs (AF included in 337,976 under Benefit section)
Agreement	\$52,530	BOR	CVPRF	Convey surface water to tertiary conveyor for

Central Valley Project Improvement Act

Type	Total	Agency	Fund	Description
				Kern NWR (AF included in 337,976 under Benefit section)
Agreement	\$166,860	BOR	CVPRF	Convey surface water directly to Kern NWR (AF included in 337,976 under Benefit section)
Agreement	\$226,600	BOR	CVPRF	Convey surface water to Los Banos WA and Grassland Resource Conservation District (AF included in 337,976 under Benefit section)
Agreement	\$499,550	BOR	CVPRF	Convey surface water supplies to Los Banos WA; Salt Slough Unit of N. Grasslands WA; and Freitas and Kesterson Units of San Luis NWR (AF included in 337,976 under Benefit section)
Agreement	\$1,536,760	BOR	CVPRF	Convey surface water to China Island Unit of N. Grasslands WA; and to tertiary conveyor for Los Banos WA; Salt Slough Unit of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Grassland Resource Conservation District (AF included in 337,976 under Benefit section)
In-Kind Equipment or Materials	\$81,000	DFW	SIK	District fees to convey water to primary and secondary lands within the Gray Lodge Wildlife Area.
Agreement	\$7,045,200	BOR	CVPRF	Convey surface water to Volta & Mendota WAs; and to secondary & tertiary conveyors for Los Banos WA; China Island and Salt Slough Units of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Kern NWR; & Grassland Resource Conservation District (AF included in 337,976 under Benefit section)
Agreement	\$706,164	FWS	CVPRF	Convey surface water to San Luis and West Bear Creek Units of the San Luis NWR (AF included in 337,976 under Benefit section)
<i>Implementation - L2 Groundwater Pumping and Lift Pumping</i>				
Agreement	\$1,096,950	BOR	CVPRF	Costs for pumping L2 groundwater & lift pumping required to elevate surface water supplies at refuge boundaries. (6,280 AF included in L2 Groundwater Pumped Benefit) Refuges: Pixley NWR; Gray Lodge, Volta, Los Banos, & Mendota WAs; China Island & Salt Slough Units; and E. Bear Cr. Unit.
Agreement	\$330,228	FWS	CVPRF	1)Groundwater pumping at Merced (4,000 AF--part of 12,780 in Benefit section);2)temp lift pumps rental for fall @ Sutter & lift pumpng @ Sutter Triangle (AF included in 45,715 in

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
				Benefit);3)lift pumping to elevate surface water at Colusa & Sutter ref boundaries (AF included in 337,976 under Benefit)
Agreement	\$283,250	BOR	CVPRF	O&M costs for pumping L2 groundwater from Volta Wasteway L-2 Diversification/Incremental L-4 Development Project wells to make a like quantity of Project L2 surface water available for use by other CVP contractors. (2,500 AF included in L2 Groundwater Pumped Benefit). Refuges: GRCD
Agreement	\$123,600	BOR	CVPRF	Electrical power costs for pumping L2 groundwater from Volta Wasteway L2 Diversification/Incremental L4 Development Project wells to make a like quantity of Project L2 surface water available for use by other CVP contractors. (2,500 AF - included in L2 Groundwater Pumped Benefit). Refuges: GRCD
<i>Monitoring - L2 Water Quality Monitoring</i>				
Agreement	\$7,476	BOR	CVPRF	Contract laboratory water sampling analysis costs for Gray Lodge Wildlife Area water quality monitoring program for both groundwater and surface water supplies.
Labor	\$0	BOR	CVPRF	Collect and evaluate flow data to determine conveyance water losses to the East Bear Creek Unit of the San Luis NWR Complex. Costs included in 'RWSP Technical Support' charter for labor.
2018				
<i>Implementation - L2 Groundwater Pumping and Lift Pumping</i>				
Agreement	\$127,200	BOR	CVPRF	Electrical power costs for pumping L2 groundwater from Volta Wasteway L2 Diversification/Incremental L4 Development Project wells to make a like quantity of Project L2 surface water available for use by other CVP contractors. (2,500 AF - included in L2 Groundwater Pumped Benefit). Refuges: GRCD
Agreement	\$291,500	BOR	CVPRF	O&M costs for pumping L2 groundwater from Volta Wasteway L-2 Diversification/Incremental L-4 Development Project wells to make a like quantity of Project

Central Valley Project Improvement Act

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
				L2 surface water available for use by other CVP contractors. (2,500 AF included in L2 Groundwater Pumped Benefit). Refuges: GRCD
Agreement	\$339,847	FWS	CVPRF	1)Groundwater pumping at Merced (4,000 AF-- part of 12,780 in Benefit section);2)temp lift pumps rental for fall @ Sutter & lift pumpng @ Sutter Triangle (AF included in 45,715 in Benefit);3)lift pumping to elevate surface water at Colusa & Sutter ref boundaries (AF included in 337,976 under Benefit)
Agreement	\$1,128,900	BOR	CVPRF	Costs for pumping L2 groundwater & lift pumping required to elevate surface water supplies at refuge boundaries. (6,280 AF included in L2 Groundwater Pumped Benefit) Refuges: Pixley NWR; Gray Lodge, Volta, Los Banos, & Mendota WAs; China Island & Salt Slough Units; and E. Bear Cr. Unit.
<i>Implementation - L2 Surface Water Conveyance</i>				
Agreement	\$127,200	BOR	CVPRF	Convey surface water to Gray Lodge WA (AF included in 337,976 under Benefit section)
Agreement	\$2,030,960	BOR	CVPRF	Convey surface water to Sacramento, Colusa and Delevan NWRs (AF included in 337,976 under Benefit section)
Agreement	\$54,060	BOR	CVPRF	Convey surface water to tertiary conveyer for Kern NWR (AF included in 337,976 under Benefit section)
Agreement	\$171,720	BOR	CVPRF	Convey surface water directly to Kern NWR (AF included in 337,976 under Benefit section)
Agreement	\$514,100	BOR	CVPRF	Convey surface water supplies to Los Banos WA; Salt Slough Unit of N. Grasslands WA; and Freitas and Kesterson Units of San Luis NWR (AF included in 337,976 under Benefit section)
Agreement	\$1,581,520	BOR	CVPRF	Convey surface water to China Island Unit of N. Grasslands WA; and to tertiary conveyer for Los Banos WA; Salt Slough Unit of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Grassland Resource Conservation District (AF included in 337,976 under Benefit section)
Agreement	\$726,732	FWS	CVPRF	Convey surface water to San Luis and West Bear Creek Units of the San Luis NWR (AF included in 337,976 under Benefit section)

Type	Total	Agency	Fund	Description
Agreement	\$7,250,400	BOR	CVPRF	Convey surface water to Volta & Mendota WAs; and to secondary & tertiary conveyors for Los Banos WA; China Island and Salt Slough Units of N. Grasslands WA; Freitas & Kesterson Units of San Luis NWR; Kern NWR; & Grassland Resource Conservation District (AF included in 337,976 under Benefit section)
In-Kind Equipment or Materials	\$81,000	DFW	SIK	District fees to convey water to primary and secondary lands within the Gray Lodge Wildlife Area.
Agreement	\$233,200	BOR	CVPRF	Convey surface water to Los Banos WA and Grassland Resource Conservation District (AF included in 337,976 under Benefit section)
<i>Implementation - L2 Water from Diverse Sources</i>				
Agreement	\$0	BOR	CVPRF	L-2 surface water provided from diverse sources with NO conveyance/power cost to Refuge Conveyance Program. Sutter 13,570 AF riparian rights; Gray Lodge 17,800 AF water rights; Los Banos 3,995 AF mitigation; Merced 9,500 AF mitigation via Merced ID (FERC license); Volta 850 (Volta Wasteway accretion)
<i>Monitoring - L2 Water Quality Monitoring</i>				
Agreement	\$7,693	BOR	CVPRF	Contract laboratory water sampling analysis costs for Gray Lodge Wildlife Area water quality monitoring program for both groundwater and surface water supplies.
Labor	\$0	BOR	CVPRF	Collect and evaluate flow data to determine conveyance water losses to the East Bear Creek Unit of the San Luis NWR Complex. Costs included in 'RWSP Technical Support' charter for labor.

RWSP Emergency IL4 Groundwater Pumping

Emergency Incremental Level 4 Groundwater pumping and related costs.

Classification: Improvement, Refuge Facility
 Location: , Central Valley Project Improvement Act
 Funding Years: 2016 - 2017
 Benefits Start Year: 2016
 Priority: 10 - Program Priority Comments:
 Partners: No Data.
 Related Programs: No Data.

Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(2) Refuge Acquisition IL4	0.0%	

Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
IL4 Groundwater Pumped	14286	acre-feet	IL4 Groundwater pumped at \$105/AF

Deliverables

<u>Date</u>	<u>Title</u>
Oct. 2015	IL4 Groundwater Pumped

Narrative

Funds identified for emergency Incremental 4 groundwater pumping. In the event that Level 2 allocations are less than 100% in Water Year 2016, these funds will allow the pumping and conveyance, as needed, of incremental level 4 groundwater which will be used to reduce the level 2 deficiency.

Data Management

Most of the Refuge Water Supply Program records are maintained in MP-410 Resources Management Division. Contract and agreement records are maintained in both MP-3800 Acquisitions Division and MP-410. Administrative costs will be tracked using FBMS and operating budget Excel spreadsheets. FBMS records are maintained electronically in MP-3600. Operating budget records are maintained in MP-410.

Risks

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
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<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
100% Level 2 Allocation provided in WY2016	1	3

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>
2016	CVPRF	\$1,500,000	\$1,500,000	\$0

Total Cost: \$1,500,000

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2016				
<i>Implementation - Supplementing groundwater pumping in drought year.</i>				
Agreement	\$1,500,000	BOR	CVPRF	Resource Reserve

Inc. Level 4 Water Purchases and L2 Exchanges

Purchase of Incremental Level 4 and Exchange of L2 Refuge Water

Classification: Improvement, Water Acquisition

Location: , South of Delta Refuges and Wildlife Areas

Funding Years: 2015 - 2018

Benefits Start Year: 2015

Priority: 5 - 'The RWSP's funding priorities for FYs 2016-2017 are: 1) Labor & overhead (Administrative and Technical); 2) Conveyance of 100% Level 2 water, subject to CVP water supply availability; 3) Acquisition and conveyance of IL4 “backstop” water needed to help meet Level 2 demands when CVP Level 2 allocation is less than 100%; 4) Facilities construction – ongoing needs, for example the Sutter NWR's design/permitting project; and 5) IL4 water acquisition and conveyance over and above what is required under Priority 3.'

Partners: FWS, CDFW, GWD

Related Programs: No Data.

Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(2) Refuge Acquisition IL4	100.0%	

Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
b3 and d2 Refuge: Inc L4 Water Acquisition, including Replacement Water	22500	acre-feet	

Deliverables

<u>Date</u>	<u>Title</u>
Oct. 2015	Incremental Level 4 Water

Narrative

Purchase water from Grassland WD and enter into uneven exchange agreements for refuge Level 2 to increase IL4 supplies.

Data Management

Water contract records are maintained in Acquisitions Division, MP-3800 and in Resources Mgt. Division, MP-410. Incremental Level 4 delivery and losses data is maintained in Resources Mgt. Divison, MP-410.

Risks

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Water Not Available for Purchase	1	1

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>
2016	CVPRF	\$2,362,500	\$2,362,500	\$0
2017	CVPRF	\$2,362,500	\$2,362,500	\$0
2017		\$0	\$0	\$0
2018	CVPRF	\$2,362,500	\$2,362,500	\$0

Total Cost: \$7,087,500

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2016				
<i>Acquisition - Execute contracts for purchase of Incremental Level 4 refuge water and exchange of L2 water to acquire IL4 water.</i>				
Labor	\$0	BOR	CVPRF	Various L2 exchanges are anticipated that would result in additional IL4 water being made available. Costs to negotiate and administer agreements would be covered under admin costs - no additional costs are anticipated
Agreement	\$2,362,500	BOR	CVPRF	Acquire up to 22,500 A/F of groundwater from Grassland Water District at \$105 A/F to meet IL4 supplies.
2017				
<i>Acquisition - Execute contracts for purchase of Incremental Level 4 refuge water and exchange of L2 water to acquire IL4 water.</i>				
Agreement	\$2,362,500	BOR	CVPRF	Acquire up to 22,500 A/F of groundwater from Grassland WD to be used to meet Inc. L4 supplies
Labor	\$0	BOR		Various L2 exchanges are anticipated that would result in additional IL4 water being made

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
				available. Costs to negotiate and administer agreements would be covered under admin costs - no additional costs are anticipated.
2018				
<i>Acquisition - Execute contracts for purchase of Incremental Level 4 refuge water and exchange of L2 water to acquire IL4 water.</i>				
Agreement	\$2,362,500	BOR	CVPRF	Acquire up to 22,500 A/F of groundwater from Grassland WD to be used to meet Inc. L4 supplies
Labor	\$0	BOR	CVPRF	Various L2 exchanges are anticipated that would result in additional IL4 water being made available. Costs to negotiate and administer agreements would be covered under admin costs - no additional costs are anticipated.

Inc. Level 4 Refuge Water Conveyance (FY2016)

Conveyance of surface water and groundwater pumping for refuges

Classification: Improvement, Refuge Surface

Location: , Central Valley Wide

Funding Years: 2015 - 2018

Benefits Start Year: 2016

Priority: 3 - Refuge Water Supply Program - Priority Ranking Numbers & Definitions:

- 1) Labor & overhead (Administrative and Technical);
- 2) Conveyance of 100% Level 2 water, subject to CVP water supply availability;
- 3) Acquisition and conveyance of IL4 “backstop” water needed to help meet Level 2 demands when CVP Level 2 allocation is less than 100%;
- 4) Facilities construction – ongoing needs; and
- 5) IL4 water acquisition and conveyance over and above what is required under Priority 3.

Partners: FWS, CDFW, GWD

Related Programs: No Data.

Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(2) Refuge Conveyance IL4	100.0%	

Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Conveyance: Inc L4 Refuge Water Conveyance (annual)	25000	acre-foot	Inc L4 Water with no Conveyance Cost to RWSP for WY2016
Conveyance: Inc L4 Refuge Water Conveyance (annual)	5253	acre-foot	Inc. L4 Surface Water Conveyance for WY2016
Conveyance: Inc L4 Refuge Water Conveyance (annual)	11600	acre-foot	Inc. L4 Groundwater Pumping for WY2016

Deliverables

<u>Date</u>	<u>Title</u>
Mar. 2016	Conveyance of Inc. Level 4 Water Supplies

Narrative

Conveyance of Incremental (Inc.) Level 4 refuge water supplies to CVPIA refuges. This includes annually acquired surface water, purchased permanent surface water, and pumped groundwater..

The conveyance of surface water supplies requires conveyance contracts with a number of conveying entities. Due to the geographical location of the refuges, direct delivery of water to a refuge boundary from Reclamation conveyance facilities can only be achieved for one of the 19 refuges. The remaining refuges receiving surface water deliveries require up to 3 conveying entities (including Reclamation facilities) for water to reach their boundaries. For the purpose of this charter, the primary conveyer represents the contracted conveyer conveying the initial diversion of refuge water supplies. In most cases, this water is then delivered to another conveying entity (secondary conveyer) with facilities in closer proximity to specific refuges. In some instances, the secondary conveyer completes the conveyance, delivering water to the refuge boundary. In other instances, a third conveying entity (tertiary conveyer) is necessary to complete refuge water conveyance due to the distances between certain refuges and available conveyance facilities. The secondary conveyer moves refuge water into the tertiary conveyer's system for final delivery to refuge boundaries.

-- FY16 represents projected costs to convey Inc. Level 4 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2016 (March 1, 2016, thru February 28, 2017).

-- FY17 represents projected costs to convey Inc. Level 4 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2017 (March 1, 2017, thru February 28, 2018).

--FY18 represents projected costs to convey Inc. Level 4 water supplies to those CVPIA refuges with sufficient external conveyance capacity in Contract Water Year 2018 (March 1, 2018, thru February 28, 2019)

Data Management

Contract and agreement records are maintained in Acquisitions Division, MP-3800 and Resources Division, MP-410.

Delivery data is maintained in MP-410 on the J Drive. Flow data for Gray Lodge Wildlife Area surface water is available on the internet at:

<http://www.usbr.gov/mp/glwa/index.cfm>

Risks

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Unfavorable hydrology	1	3
Conveyance contractor default	1	3

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>
2016	CVPRF	\$1,808,648	\$1,808,648	\$0
2017	CVPRF	\$1,862,907	\$1,862,907	\$0
2018	CVPRF	\$1,917,167	\$1,917,167	\$0

Total Cost: \$5,588,722

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2016				
<i>Implementation - Incremental Level 4 Conveyance at NO Cost to RWSP</i>				
Agreement	\$0	BOR	CVPRF	Inc L4 water delivered with no conveyance costs to Refuge Water Supply Program . (2,500 AF surface water via Merced ID FERC mitigation agrmt; 22,500 AF groundwater via Grassland Water District groundwater contract. AF included in "Inc L4 Water with No Conveyance Cost to RWSP Benefit'.
<i>Implementation - Inc. L4 Surface Water Conveyance</i>				
Agreement	\$618,000	BOR	CVPRF	Convey surface water to secondary & tertiary conveyors for Kern NWR ((5,253 AF of permanent purchased NOD Incremental Level 4 water (ACID and C-P-T WDs) via transfer from NOD to SOD). Refer to Inc. L4 Surface Water Conveyance in Benefit section.
Agreement	\$27,000	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR ((5,253 AF of permanent purchased NOD Incremental Level 4 water (ACID and C-P-T WDs) via transfer from NOD to SOD). Refer to Inc. L4 Surface Water Conveyance in Benefit section.
Agreement	\$86,000	BOR	CVPRF	Convey surface water to Kern NWR boundary ((5,253 AF of permanent purchased NOD Incremental Level 4 water (ACID and C-P-T WDs) via transfer from NOD to SOD). Refer to Inc. L4 Surface Water Conveyance in Benefit section.

Central Valley Project Improvement Act

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
<i>Implementation - Inc. Level 4 Groundwater Pumping</i>				
Agreement	\$577,000	BOR	CVPRF	Costs for pumping Inc. L4 groundwater and lift pumping of Inc. L4 surface water developed on SOD Wildlife Areas – 5,300 AF groundwater and 2,000 AF developed surface supplies. (Acre-feet included in Incremental Level 4 Groundwater Pumped Benefit)
Agreement	\$275,000	BOR	CVPRF	O&M costs for pumping Inc. L-4 groundwater from Volta Wasteway Level 2 Diversification / Inc. L-4 Development Pilot Project wells. (2,500 AF included in Inc. L-4 Groundwater Pumped Benefit - same AF identified in electrical power costs for Volta Wells pumping).
Agreement	\$92,000	BOR	CVPRF	Electrical power costs for pumping IL4 groundwater from wells on Pixley NWR. (2,000 AF included in Inc. L-4 Groundwater Pumped Benefit).
Agreement	\$120,000	BOR	CVPRF	Electrical power costs for pumping IL4 groundwater from Volta Wasteway L2 Diversification/Incremental L4 Development Project wells. (2,500 AF - included in Inc. L-4 Groundwater Pumped Benefit - same AF identified in O&M costs for Volta Wells pumping).
<i>Monitoring - Inc. Level 4 Water Quality Monitoring</i>				
Equipment or Materials	\$13,648	BOR	CVPRF	Costs for laboratory analysis of water samples for Inc. L4 groundwater quality monitoring program related to CDFW SOD WAs Reimbursement Agrmt.
2017				
<i>Implementation - Inc. Level 4 Groundwater Pumping</i>				
Agreement	\$123,600	BOR	CVPRF	Electrical power costs for pumping IL4 groundwater from Volta Wasteway L2 Diversification/Incremental L4 Development Project wells. (2,500 AF - included in Inc. L-4 Groundwater Pumped Benefit - same AF identified in O&M costs for Volta Wells pumping).
Agreement	\$94,760	BOR	CVPRF	Electrical power costs for pumping IL4 groundwater from wells on Pixley NWR. (2,000 AF included in Inc. L-4 Groundwater Pumped Benefit).

Type	Total	Agency	Fund	Description
Agreement	\$283,250	BOR	CVPRF	O&M costs for pumping Inc. L-4 groundwater from Volta Wasteway Level 2 Diversification / Inc. L-4 Development Pilot Project wells. (2,500 AF included in Inc. L-4 Groundwater Pumped Benefit - same AF identified in electrical power costs for Volta Wells pumping).
Agreement	\$594,310	BOR	CVPRF	Costs for pumping Inc. L4 groundwater and lift pumping of Inc. L4 surface water developed on SOD Wildlife Areas – 5,300 AF groundwater and 2,000 AF developed surface supplies. (Acre-feet included in Incremental Level 4 Groundwater Pumped Benefit)
<i>Implementation - Incremental Level 4 Conveyance at NO Cost to RWSP</i>				
Agreement	\$0	BOR	CVPRF	Inc L4 water delivered with no conveyance costs to Refuge Water Supply Program . (2,500 AF surface water via Merced ID FERC mitigation agrmt; 22,500 AF groundwater via Grassland Water District groundwater contract. AF included in "Inc L4 Water with No Conveyance Cost to RWSP Benefit'.)
<i>Implementation - Inc. L4 Surface Water Conveyance</i>				
Agreement	\$88,580	BOR	CVPRF	Convey surface water to Kern NWR boundary ((5,253 AF of permanent purchased NOD Incremental Level 4 water (ACID and C-P-T WDs) via transfer from NOD to SOD). Refer to Inc. L4 Surface Water Conveyance in Benefit section.
Agreement	\$27,810	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR ((5,253 AF of permanent purchased NOD Incremental Level 4 water (ACID and C-P-T WDs) via transfer from NOD to SOD). Refer to Inc. L4 Surface Water Conveyance in Benefit section.
Agreement	\$636,540	BOR	CVPRF	Convey surface water to secondary & tertiary conveyors for Kern NWR ((5,253 AF of permanent purchased NOD Incremental Level 4 water (ACID and C-P-T WDs) via transfer from NOD to SOD). Refer to Inc. L4 Surface Water Conveyance in Benefit section.
<i>Monitoring - Inc. Level 4 Water Quality Monitoring</i>				
Equipment or Materials	\$14,057	BOR	CVPRF	Costs for laboratory analysis of water samples for Inc. L4 groundwater quality monitoring program

Central Valley Project Improvement Act

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
				related to CDFW SOD WAs Reimbursement Agrmt.
2018				
<i>Implementation - Inc. L4 Surface Water Conveyance</i>				
Agreement	\$28,620	BOR	CVPRF	Convey surface water to tertiary conveyor for Kern NWR ((5,253 AF of permanent purchased NOD Incremental Level 4 water (ACID and C-P-T WDs) via transfer from NOD to SOD). Refer to Inc. L4 Surface Water Conveyance in Benefit section.
Agreement	\$91,160	BOR	CVPRF	Convey surface water to Kern NWR boundary ((5,253 AF of permanent purchased NOD Incremental Level 4 water (ACID and C-P-T WDs) via transfer from NOD to SOD). Refer to Inc. L4 Surface Water Conveyance in Benefit section.
Agreement	\$655,080	BOR	CVPRF	Convey surface water to secondary & tertiary conveyors for Kern NWR ((5,253 AF of permanent purchased NOD Incremental Level 4 water (ACID and C-P-T WDs) via transfer from NOD to SOD). Refer to Inc. L4 Surface Water Conveyance in Benefit section.
<i>Implementation - Incremental Level 4 Conveyance at NO Cost to RWSP</i>				
Agreement	\$0	BOR	CVPRF	Inc L4 water delivered with no conveyance costs to Refuge Water Supply Program . (2,500 AF surface water via Merced ID FERC mitigation agrmt; 22,500 AF groundwater via Grassland Water District groundwater contract. AF included in "Inc L4 Water with No Conveyance Cost to RWSP Benefit'.)
<i>Implementation - Inc. Level 4 Groundwater Pumping</i>				
Agreement	\$291,500	BOR	CVPRF	O&M costs for pumping Inc. L-4 groundwater from Volta Wasteway Level 2 Diversification / Inc. L-4 Development Pilot Project wells. (2,500 AF included in Inc. L-4 Groundwater Pumped Benefit - same AF identified in electrical power costs for Volta Wells pumping).
Agreement	\$611,620	BOR	CVPRF	Costs for pumping Inc. L4 groundwater and lift pumping of Inc. L4 surface water developed on SOD Wildlife Areas – 5,300 AF groundwater and 2,000 AF developed surface supplies. (Acre-feet included in Incremental Level 4 Groundwater

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
				Pumped Benefit)
Agreement	\$97,520	BOR	CVPRF	Electrical power costs for pumping IL4 groundwater from wells on Pixley NWR. (2,000 AF included in Inc. L-4 Groundwater Pumped Benefit).
Agreement	\$127,200	BOR	CVPRF	Electrical power costs for pumping IL4 groundwater from Volta Wasteway L2 Diversification/Incremental L4 Development Project wells. (2,500 AF - included in Inc. L-4 Groundwater Pumped Benefit - same AF identified in O&M costs for Volta Wells pumping).
<i>Monitoring - Inc. Level 4 Water Quality Monitoring</i>				
Equipment or Materials	\$14,467	BOR	CVPRF	Costs for laboratory analysis of water samples for Inc. L4 groundwater quality monitoring program related to CDFW SOD WAs Reimbursement Agrmt.

Refuge Cons - Sutter NWR

Complete the design, permitting, and environmental compliance for the alternatives identified in the feasibility study

Classification: Improvement, Refuge Facility
 Location: , North of Delta Refuges and Wildlife Areas
 Funding Years: 2015 - 2016
 Benefits Start Year: 2015
 Priority: 4 - Facilities construction – ongoing needs, for example the Sutter NWR's design/permitting project
 Partners: FWS, CDFW, CDWR
 Related Programs: CVPIA b2

Authority

Provision	Percentage	Comment
(d)(5)-(1) Refuge Facility L2	78.0%	Facilities Construction for Level 2 benefits (Reimbursable by water and power users)
(d)(5)-(2) Refuge Facility IL4	22.0%	Facilities Construction for Level 4 benefits (Non-reimbursable and subject to State Cost Share)

Metrics

Name	Value	Units	Comment
Construction: Planning, Design and Construction to deliver water to 19 Refuges	30000	acre-feet	The amount of water is at full build out of the project. The project is phased into two parts; a short-term solution (pumping plant) and long-term solution (conveyance). The short-term solution will in incorporated into the long-term solution.

Deliverables

Date	Title
Sep. 2016	Enivronmental Assesment - NEPA Document
Sep. 2016	Pumping Plant (short-term alternative) Design and Specs
Sep. 2016	Pumping Plant (short-term alternative) Permitting

Narrative

The project alternatives are identified in the Sutter National Wildlife Refuge Water Supply Conveyance Study. The short-term alternative, a pumping plant on the East Borrow Ditch will proceed forward. Work includes design and specifications of the project, the permitting required

to implement the alternative, and the environmental work. Actual construction of the short-term alternative will proceed in a future year.

Data Management

Project information will be saved on the MP410 'J' project folder and hard copies of documents will be kept in project binders.

Risks

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Timing of project permitting	1	2
Environmental review delayed	1	2

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>
2016	CVPRF	\$500,000	\$500,000	\$0

Total Cost: \$500,000

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2016				
<i>Environmental Compliance and Permitting - Complete the environmental compliance, permitting, design and specs for the pumping plant identified in the feasibility study.</i>				
Labor	\$400,000	BOR	CVPRF	Completion of the design and specs for the pumping plant (short-term alternative) in order to move forward with a solicitation for a construction contract.
Labor	\$100,000	BOR	CVPRF	The remaining environmental compliance, permitting and NEPA will be completed by Reclamation staff or through a contract.

Refuge Cons - Biggs-West Gridley/Gray Lodge Refuge

Construction funding and service agreement with MPCO

Classification: Improvement, Refuge Surface
 Location: , North of Delta Refuges and Wildlife Areas
 Funding Years: 2015 - 2016
 Benefits Start Year: 2015
 Priority: 4 - Facilities construction – ongoing needs, for example the Sutter NWR's design/permitting project
 Partners: Gray Lodge, FWS, CDFW, BWDWD
 Related Programs: CVPIA b2

Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(5)-(1) Refuge Facility L2	80.0%	Facilities Construction for Level 2 benefits (Reimbursable by water and power users)
(d)(5)-(2) Refuge Facility IL4	20.0%	Facilities Construction for Level 4 benefits (Non-reimbursable and subject to State Cost Share)

Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Construction: Full L4 Delivery Capacity	44000	acre-feet	Construction funding
Construction: Full L4 Delivery Capacity	0	completion	Service agreement

Deliverables

<u>Date</u>	<u>Title</u>
Sep. 2015	Service Agmt - FY2016
Sep. 2016	Service Agmt - FY2017

Narrative

The construction funding will be added to the existing cooperative agreement with Biggs-West Gridley Water District to continue with the conveyance and infrastructure improvements that began in January 2014. Once completed, Biggs-West Gridley Water District will have the conveyance capacity to provide reliable full Level 4 water supplies to meet the timing and schedule needs of Gray Lodge Wildlife Refuge.

The Service Agreement will monitor construction activities on the BWGWD project. Personnel will be on site to help coordinate the construction work, verify that the work in place is per the

design and specifications, monitor schedules and budgets, attend weekly project management meetings, provide construction/engineering support as needed, and prepare written daily and weekly construction update reports.

Data Management

Project notes will be maintained by the Willows construction office. Data (project daily updates and weekly reports) will be kept on the MP410 Drive ('J') and in a project binder.

Risks

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Cost estimates and budget	1	2

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>
2016	CVPRF	\$15,070,000	\$15,070,000	\$0
2017	CVPRF	\$16,822,000	\$16,822,000	\$0
2018	CVPRF	\$2,228,500	\$2,228,500	\$0

Total Cost: \$34,120,500

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2016				
<i>Construction - Oversee construction activities of the conveyance improvements at BWGWD. Daily and weekly reports will be prepared.</i>				
Labor	\$600,000	BOR	CVPRF	This is the contract for the project and on-site management of the construction contract.
Agreement	\$14,470,000	BOR	CVPRF	This is the estimated amount of funding to be added to the existing cooperative agreement for the construction of the project.
2017				
<i>Construction - Oversee construction activities of the conveyance improvements at BWGWD. Daily and weekly reports will be prepared.</i>				
Labor	\$650,000	BOR	CVPRF	This is the contract for the project and on-site management of the construction contract.
Agreement	\$16,172,000	BOR	CVPRF	This is the estimated amount of funding to be added to the existing cooperative agreement for the construction of the project.

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2018				
<i>Construction - Oversee construction activities of the conveyance improvements at BWGWD. Daily and weekly reports will be prepared.</i>				
Labor	\$84,500	BOR	CVPRF	This is the contract for the project and on-site management of the construction contract.
Agreement	\$2,144,000	BOR	CVPRF	This is the estimated amount of funding to be added to the existing cooperative agreement for the construction of the project.

Refuge Cons -NVRWP

North Valley Regional Recycled Water Program

Classification: Improvement, Refuge Surface
 Location: , South of Delta Refuges and Wildlife Areas
 Funding Years: 2015 - 2016
 Benefits Start Year: 2015
 Priority: 5 - IL4 water acquisition and conveyance over and above what is required under Priority 3
 Partners: Del Puerto Water District, City of Modesto, City of Turlock
 Related Programs: CVPIA b2

Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(5)-(2) Refuge Facility IL4	100.0%	Facilities Construction for Incremental Level 4 benefits (Non-reimbursable and subject to State Cost Share)

Metrics

No Data.

Deliverables

<u>Date</u>	<u>Title</u>
Nov. 2015	Permits and EIS

Narrative

This project involves conveyance of tertiary treated wastewater from the cities of Turlock and Modesto into the DMC for delivery to Del Puerto Water District and refuges. Refuges that would benefit from this water includes the San Luis Unit, West Bear Creek Unit, Kesterson Unit, Freitas Unit, Los Banos Wildlife Area, China Island, Salt Slough, Mendota Wildlife Area, Grasslands Resource Conservation District, and Kern National Wildlife Refuge. At full build out, the amount of water that could be delivered to the refuges is up to approximately 30,000 acre-feet, depending on our level involvement with the project. Currently, funding is needed to complete the environmental work (EIS/EIR), final project design, and all the permitting required for the project.

Data Management

Data will be managed by the consultants. Reports will be provided on progress. Final reports will include all the permits necessary to construct the project and the environmental compliance reports (EIS/EIR).

Risks

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Project Approval	2	2

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>	<u>Local</u>
2016	CVPRF	\$3,500,000	\$0	\$0	\$3,500,000
2017	CVPRF	\$20,000,000	\$0	\$0	\$20,000,000
2018	CVPRF	\$20,000,000	\$20,000,000	\$0	\$0

Total Cost: \$43,500,000

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2016				
<i>Environmental Compliance and Permitting - Funding to complete the environmental and permitting, design/construction management and construction costs for the project.</i>				
Labor	\$3,500,000	Local	CVPRF	Provide funding for environmental and permitting, design/construction management and construction cost to complete recycled water conveyance to Del Puerto Water District and refuges south of the Delta. Currently, there is \$200,000 identified and available in FY2016.
2017				
<i>Environmental Compliance and Permitting - Funding to complete the environmental and permitting, design/construction management and construction costs for the project.</i>				
Agreement	\$20,000,000	Local	CVPRF	Provided funding for the construction of the project. Reclamation's funding will be proportionate (percentage) to the amount of water that will be made available to the Program.
2018				
<i>Environmental Compliance and Permitting - Funding to complete the environmental and permitting, design/construction management and construction costs for the project.</i>				
Agreement	\$20,000,000	BOR	CVPRF	Provided funding for the construction of the project. Reclamation's funding will be proportionate (percentage) to the amount of

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
				water that will be made available to the Program.

Refuge Cons - EBC Pumping Plant

East Bear Creek Pumping Plant repairs and improvements.

Classification: Improvement, Refuge Facility
 Location: , South of Delta Refuges and Wildlife Areas
 Funding Years: 2015 - 2016
 Benefits Start Year: 2015
 Priority: 4 - Facilities construction – ongoing needs, for example the Sutter NWR's design/permitting project
 Partners: FWS
 Related Programs: CVPIA b2

Authority

<u>Provision</u>	<u>Percentage</u>	<u>Comment</u>
(d)(5)-(1) Refuge Facility L2	67.0%	Facilities Construction for Level 2 benefits (Reimbursable by water and power users)
(d)(5)-(2) Refuge Facility IL4	33.0%	Facilities Construction for Incremental Level 4 benefits (Non-reimbursable and subject to State Cost Share)

Metrics

<u>Name</u>	<u>Value</u>	<u>Units</u>	<u>Comment</u>
Construction: Planning, Design and Construction to deliver water to 19 Refuges	0	acre-foot	Acre-feet pumped varies each year.

Deliverables

<u>Date</u>	<u>Title</u>
Jun. 2016	Plant repairs
Jan. 2017	Service contracts

Narrative

This pumping plant has had a lot of challenges since it was built. It has been a struggle to keep it operating throughout the pumping season. Funding is needed to:

1. Complete remaining repairs (hydraulic slide gate, ball valves, isolation valves, air valves, and knife gates).

2. Enter into service agreements in order to be able to address problems as they occur. Service contracts anticipated include automation/system control provider and a well/plant mechanical provider.

3. Study the current design to make it more operationally efficient by Refuge staff. Currently the plant is subject to frequent shut downs due to alarms and notifications that need to be resolved by calling a consultant. This requires time, during which the Plant is unable to pump water for the refuge.

Currently, no funds have been allocated to the San Joaquin Action Plans Lands. Funds would need to be moved to this account from the Refuge Water Supplies, Facilities account.

Data Management

Data and reports will be maintained on MP410's 'J' Drive

Risks

<u>Risk</u>	<u>Likelihood</u>	<u>Impact</u>
Plant failure - inability to pump water	2	2

Cost Estimate

<u>Year</u>	<u>Fund</u>	<u>Total</u>	<u>BOR</u>	<u>FWS</u>
2016	CVPRF	\$270,000	\$270,000	\$0

Total Cost: \$270,000

Activities and Resources

<u>Type</u>	<u>Total</u>	<u>Agency</u>	<u>Fund</u>	<u>Description</u>
2016				
<i>Construction - Repair poorly performing or inoperable equipment (mostly valves and gates) and enter into service contracts for future repairs.</i>				
Agreement	\$120,000	BOR	CVPRF	Enter into service agreement for automation/system support and well/mechanical support.
Agreement	\$150,000	BOR	CVPRF	Repair of valves and gates.